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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1651	

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/511,355	HARIRI ET AL.	
	Examiner	Art Unit	
	Lora E. Barnhart	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-9,11-14,16,25,26,28-30,32,33,46-49 and 102* is/are pending in the application.

4a) Of the above claim(s) *5,12,28 and 46-49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6-9,11,13,14,16,25,26,29,30,32,33 and 102* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Prior art references not included with this Office action can be found in a prior action.

Response to Amendments

Applicant's amendments filed 5/15/06 to claims 1, 6, 9, 13, 14, 16, 25, 26, 30, 32, 33, and 46 have been entered. Claims 3, 4, 15, 17-24, 27, 34-45, and 50-101 have been cancelled. Claim 102 has been added. Claims 1, 2, 5-9, 11-14, 16, 25, 26, 28-30, 32, 33, 46-49, and 102 remain pending in the current application, of which 1, 2, 6-9, 11, 13, 14, 16, 25, 26, 29, 30, 32, 33, and 102 are being considered on the merits.

The amendment to the claims filed on 5/15/06, does not comply with the requirements of 37 CFR 1.121(c) because the claim listing does not contain the correct status of every claim. Amendments to the claims filed on or after July 30, 2003 must comply with 37 CFR 1.121(c) which states (emphasis added):

(c) *Claims.* Amendments to a claim must be made by rewriting the entire claim with all changes (e.g., additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

(1) *Claim listing.* All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled" or "not entered" may be aggregated into one statement (*e.g.*, Claims 1–5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(2) *When claim text with markings is required.* All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. **Only claims having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."**

(3) *When claim text in clean version is required.* The text of all pending claims not being currently amended shall be presented in the claim listing in clean version, *i.e.*, without any markings in the presentation of text. The presentation of a clean version of any claim having the status of "original," "withdrawn" or "previously presented" will constitute an assertion that it has not been changed relative to the immediate prior version, except to omit markings that may have been present in the immediate prior version of the claims of the status of "withdrawn" or "previously presented." Any claim added by amendment must be indicated with the status of "new" and presented in clean version, *i.e.*, without any underlining.

(4) *When claim text shall not be presented; canceling a claim.*

(i) No claim text shall be presented for any claim in the claim listing with the status of "canceled" or "not entered."

(ii) Cancellation of a claim shall be effected by an instruction to cancel a particular claim number. Identifying the status of a claim in the claim listing as "canceled" will constitute an instruction to cancel the claim.

(5) *Reinstatement of previously canceled claim.* A claim which was previously canceled may be reinstated only by adding the claim as a "new" claim with a new claim number.

As noted above, the amendment under consideration herein fails to comply with 37 CFR 1.121 because claim 46 should be marked "withdrawn – currently amended." Thus, the amendment could be considered non-responsive. However, in the interest of compact prosecution, the amendment at issue will not be considered non-responsive. However, any future responses failing to comply with 37 CFR 1.121 will be held non-responsive, and will not be considered.

Election/Restrictions

Claims 46-49 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species ("differentiation in cell culture"), there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/6/05. Applicant has already received an Office action on the merits for the elected species ("differentiation in an individual"). claim 46 requires contacting a cell with a PDE IV inhibitor, then administering this treated cell to an individual; claim 47 requires administering these treated cells with untreated cells. Claims 46-49 are, therefore, drawn to a method in which cells are treated *ex vivo* with a PDE IV inhibitor, then administered to a patient afterward. This is a non-elected species.

Claims 5, 12, 28, and 46-49 remain withdrawn. Claims 1, 2, 6-9, 11, 13, 14, 16, 25, 26, 29, 30, 32, 33, and 102 ONLY are currently under consideration on their merits.

Specification

The objections to the specification are withdrawn in light of applicant's comments and the amendments to the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 11 remains rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods of modulating some aspects of

proliferation and differentiation of mammalian stem or progenitor cells to varying degrees using a few PDE4 inhibitors, does not reasonably provide enablement for methods of inducing specific differentiation end points (including the production of hematopoietic cells) comprising treating any given mammalian stem or progenitor cell with any given PDE4 inhibitor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and to use the invention commensurate in scope with these claims.

The factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands*, 858 F.2d 731, 737, 8 USPQd 1400, 1404 (Fed. Cir. 1988) (a) the breadth of the claims; (b) the nature of the invention; (c) the state of the prior art; (d) the level of one of ordinary skill; (e) the level of predictability in the art; (f) the amount of direction provided by the inventor; (g) the existence of working examples; and (h) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. While all of these factors are considered, a sufficient number are discussed below so as to create a *prima facie* case.

Claim 11 requires that hematopoietic stem or progenitor cells (HSCs) be treated with a compound having Formula VII at page 43, line 5, of the specification ("Formula VII"), or one of its analogues, to yield a cell that expresses a particular combination of differentiation markers.

Directing the differentiation or proliferation of HSCs to a particular end is a major problem in the stem cell art, despite the relatively high level of ordinary skill therein. Eckfeldt et al. (2005, *PLoS Biology* 3: 1449-1458; reference U) teach that even years

after time of the claimed invention, methods for regulating the differentiation and proliferation of HSCs *in vitro* are nascent and not well understood (page 1449, column 1). Eckfeldt et al. also teach that one fraction of bone marrow HSCs are $CD34^{+}CD33^{-}CD38^{-}$ when they are collected from the marrow; however, the specification and art provide no guidance for treating $CD34^{+}CD33^{-}CD38^{-}$ cells to produce $CD34^{+}CD33^{+}CD38^{-}$ cells, as in claim 11. CD33 is a marker of monocytes and macrophages, not HSCs (see reference V, http://www.cancerindex.org/geneweb/CD33.htm). In light of the unpredictable nature of the stem cell differentiation art and the breadth of the claims, the specification fails to provide sufficient guidance for treating HSCs with Formula VII to yield cells that express the monocyte marker CD33.

The rejection of record of various other claims under 35 U.S.C. 112, first paragraph, for lack of enablement is withdrawn in light of the amendments to the claims.

The rejection of record of various claims under 35 U.S.C. 112, first paragraph, for lack of written description is withdrawn in light of the amendments to the claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 is confusing because it requires that the "hematopoietic stem cell or hematopoietic progenitor cell" of claim 1 differentiate into a "hematopoietic cell," which does not appear to limit the matter of claim 1. Hematopoietic cells are, by definition, progenitors of blood cells. Clarification is required.

Claim Rejections - 35 USC § 102

The rejections under 35 U.S.C. 102(b) as being anticipated by various prior art references are withdrawn in light of the claim amendments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 7-9, 16, 25, 26, 29, 30, 32, 33, and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaspar Elsas et al. (2000, *British Journal of Pharmacology* 130: 1362-1368) taken in view of Muller et al. (2000, U.S. Patent 6,020,358; reference A) and Janowska-Wieczorek et al. (2001, *Blood* 98: 3143-3149; reference X). The claims are drawn to a method for modulating the proliferation or differentiation of a mammalian hematopoietic stem or progenitor cell comprising contacting said cell with a compound having Formula VII at page 43, line 5, of the specification ("Formula VII"), or one of its analogues; and a composition that may be

made thereby. In some dependent claims, the compound is present in a particular concentration; in some dependent claims, the cell is human. In some dependent claims, the cells are CD34+ or $CD11b^+$ cells. In some dependent claims, the differentiation to be modulated is differentiation to a hematopoietic cell.

Gaspar Elsas et al. teach isolating mouse bone marrow, which comprises CD34+ and $CD11b^+$ hematopoietic stem cells (HSCs; see abstract of Janowska-Wieczorek et al.), and treating the same with rolipram, a PDE4 inhibitor (page 1363, column 2, paragraph 2; table 1). Treating the cells of Gaspar Elsas et al. with rolipram affects the degree of colony formation by said cells (Table 1), which is an indicator of differentiation. The cell culture dish of Gaspar Elsas et al. is a "subject" according to the broadest reasonable definition of the term (*i.e.*, "that which experiences or is subjected to a treatment").

Gaspar Elsas et al. do not teach contacting HSCs with Formula VII, or contacting human HSCs with any PDE IV inhibitor. Gaspar Elsas et al. do not teach the concentrations recited in claim 7, for example.

Muller et al. teach phenethylsulfone compounds that decrease TNFα levels and inhibit PDE4 (column 4, lines 29-32). In particular, one of the claimed embodiments of the compound of Muller et al. corresponds to Formula VII. Referring to column 5, lines 1-44, Formula VII is identical to Formula I of Muller et al., wherein Y is C=O; R^1, R^2, and R^3 and hydrogen; R^4 is $-NR^8R^9$; R^5 is alkoxy of 1 carbon atom; R^6 is alkoxy of 2 carbon atoms; R^7 is alkyl of 1 carbon atom; one of R^8 and R^9 is hydrogen and the other is

$-COR^{10}$; and R^{10} is alkyl of 1 carbon atom (see also claim 1), *i.e.*, 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione (Abstract).

A person of ordinary skill in the art would have had a reasonable expectation of success in substituting the 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione of Muller et al. into the method of Gaspar Elsas et al. because both rolipram and 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione are PDE4 inhibitors. The skilled artisan would have been motivated to make such a substitution because Muller et al. teach that 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione and the other compounds of the invention are useful in increasing cyclic AMP levels in cells (column 4, lines 28-53).

The selection of the amount of 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione to add to the HSCs in the method of Gaspar Elsas et al. would have been a routine matter of optimization on the part of the artisan of ordinary skill, said artisan recognizing that Gaspar Elsas et al. teach varying the amount of PDE4 inhibitor added to the cells (Table 1). A holding of obviousness over the cited claims is therefore clearly required.

The selection of mammal from which to obtain HSCs would have been a routine matter of optimization on the part of the artisan of ordinary skill, said artisan recognizing that Gaspar Elsas et al. teach that murine and human bone marrow have similar properties (page 1362, column 2). A holding of obviousness over the cited claims is therefore clearly required.

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute varying amounts of the 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione of Muller et al. for the varying amounts of rolipram and in the method of Gaspar Elsas et al. because the compounds are functional equivalents, and because the amount of compound would have constituted routine optimization at the time of the invention. Furthermore, substituting human HSCs for murine HSCs would have been obvious, because Gaspar Elsas et al. teach that both humans and mice are mammals with bone marrow having similar properties.

Therefore, the invention as a whole would have been *prima facie* obvious to a person of ordinary skill at the time the invention was made.

Claims 1, 2, 6-9, 11, 13, 14, 16, 25, 26, 29, 30, 32, 33, and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaspar Elsas et al. taken in view of Muller et al. and Janowska-Wieczorek et al. as applied to claims 1, 2, 7-9, 16, 25, 26, 29, 30, 32, 33, and 102 above, and further in view of Waki et al. (1999, *Japan Journal of Pharmacology* 79:477-483; reference W). The claims are drawn to methods and compositions as described above. In some dependent claims, the contacting is conducted *in vivo*.

The teachings of Gaspar Elsas et al., Muller et al., and Janowska-Wieczorek et al. are relied upon as discussed above.

Gaspar Elsas et al., Muller et al., and Janowska-Wieczorek et al. do not teach contacting HSCs with a PDE4 inhibitor *in vivo*.

Waki et al. teach administering 1-*n*-butyl-3-*n*-propylxanthine (XT-44), a PDE4 inhibitor, subcutaneously or orally to rats (page 478, column 2, through page 479, column 1; Figures 2-4).

A person of ordinary skill in the art would have had a reasonable expectation of success in substituting the 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione of Muller et al. for the XT-44 of Waki et al. because both are phosphodiesterase inhibitors. The skilled artisan would have been motivated to make such a substitution because Muller et al. contemplate administering 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione for treatment of various conditions (column 4, lines 35-54).

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute the 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione of Muller et al. for the XT-44 of Waki et al. because the two are functional equivalents.

Therefore, the invention as a whole would have been *prima facie* obvious to a person of ordinary skill at the time the invention was made.

Claims 1, 2, 6-9, 11, 13, 14, 16, 25, 26, 29, 30, 32, 33, and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waki et al. taken in view of Muller et al. and Janowska-Wieczorek et al. The claims are drawn to methods as discussed above.

Waki et al. teach isolating rat bone marrow, which comprises CD34+ and $CD11b^+$ hematopoietic stem cells (HSCs; see abstract of Janowska-Wieczorek et al.), and

treating the same with 1-*n*-butyl-3-*n*-propylxanthine (XT-44), a PDE4 inhibitor (page 478, column 2; Figure 1). Waki et al. also teach administering XT-44 subcutaneously or orally to rats (page 478, column 2, through page 479, column 1; Figures 2-4).

Waki et al. do not teach contacting cells with Formula VII.

Muller et al. teach phenethylsulfone compounds that decrease TNFα levels and inhibit PDE4 (column 4, lines 29-32). In particular, one of the claimed embodiments of the compound of Muller et al. corresponds to Formula VII. Referring to column 5, lines 1-44, Formula VII is identical to Formula I of Muller et al., wherein Y is C=O; R^1, R^2, and R^3 and hydrogen; R^4 is $-NR^8R^9$; R^5 is alkoxy of 1 carbon atom; R^6 is alkoxy of 2 carbon atoms; R^7 is alkyl of 1 carbon atom; one of R^8 and R^9 is hydrogen and the other is $-COR^{10}$; and R^{10} is alkyl of 1 carbon atom (see also claim 1), *i.e.*, 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione (Abstract).

A person of ordinary skill in the art would have had a reasonable expectation of success in substituting the 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione of Muller et al. into the method of Waki et al. because both XT-44 and 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]4-aminoisoindoline-1,3-dione are PDE4 inhibitors. The skilled artisan would have been motivated to make such a substitution because Muller et al. teach that 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione and the other compounds of the invention are useful in increasing cyclic AMP levels in cells (column 4, lines 28-53).

The selection of the amount of 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione to add to the HSCs in the method of

Waki et al. would have been a routine matter of optimization on the part of the artisan of ordinary skill, said artisan recognizing that Waki et al. teach varying the amount of PDE4 inhibitor added to the cells (Figures 1-4). A holding of obviousness over the cited claims is therefore clearly required.

The selection of mammal from which to obtain HSCs would have been a routine matter of optimization on the part of the artisan of ordinary skill, said artisan recognizing that murine and human bone marrow have similar properties. A holding of obviousness over the cited claims is therefore clearly required.

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute varying amounts of the 2-[1-(3-ethoxy-4-methoxyphenyl)-2-methylsulfonylethyl]-4-aminoisoindoline-1,3-dione of Muller et al. for the varying amounts of XT-44 and in the method of Waki et al. because the compounds are functional equivalents, and because the amount of compound would have constituted routine optimization at the time of the invention. Furthermore, substituting human HSCs for murine HSCs would have been obvious.

Therefore, the invention as a whole would have been *prima facie* obvious to a person of ordinary skill at the time the invention was made.

Applicants' arguments have been considered to the extent that they read on the new grounds of rejection. In response to the rejections of record under 35 U.S.C. § 102, applicant alleges that none of the cited art teach the claimed compound (Reply, page 13, paragraphs 1-3). The new rejection, however, requires Muller et al., which teaches

the claimed compound. The rejections under 35 U.S.C. § 103 are not made over any single reference, but rather over the combined cited references.

Double Patenting

The double patenting rejection is withdrawn in light of the claim amendments.

No claims are allowed. No claims are free of the art.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lora E. Barnhart whose telephone number is 571-272-1928. The examiner can normally be reached on Monday-Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Wityshyn can be reached on 571-272-0926. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lora E Barnhart